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Resourceful sensemaking: Overcoming barriers between marketing and design in NPD

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Introduction

New product development (NPD) success is reliant on the diverse inputs and close interactions between different organizational functions (Baker and Sinkula, 2007; Sarin, 2009; Seidel, 2007). Although “innovation requires collective action, or efforts to create shared understandings from disparate perspectives” (Dougherty, 1992, p. 195), achieving this is no easy task. Interaction between those involved in NPD often feels like the moral of the blind men and the elephant—employees from different functions offer important insights into particular aspects of the problem, but sole reliance on any single viewpoint results in poor solutions and performance, as empirical studies show (see, e.g., Krohmer, Homburg and Workman, 2002; Yang et al. 2012). However, departmental practitioners and managers face a seeming paradox: they must simultaneously bring the best of their discipline’s practices and insights to the NPD problem, while somehow coming to a shared agreement about the right way forward (Dougherty et al. 2000; Ernst, Hoyer and Rübsaamen, 2010; Fisher, Maltz and, Jaworski 1997; Sarin2009).

This article examines how designers and marketers overcome deep-seated differences in approaching NPD (Di Benedetto, 2012; Verganti, 2011). Relations between these two

functions are particularly important for NPD success (Griffin, 2011; Noble, 2011) as well as to brand value, long-term competitive advantage, and firm performance (Beverland, Wilner and Micheli, 2015; Verganti, 2011). However, several authors have long remarked that industrial designers experience tension with marketers and that this relationship is fraught with misunderstanding. For example, Micheli et al. (2012) found that designers and marketers have different perceptions of what constitutes a “good design”, while Beverland (2005) and Zhang, Hu, and Kotabe (2011) identified how mutual stereotypes led each to ignore insights essential for NPD success.

Although extant research has examined the reasons for barriers to design-marketing integration (as well as other functions engaged in NPD), less is known about how to overcome such barriers and achieve the level of coordination necessary to improve NPD outcomes. Previous studies in this area have developed along two main lines of inquiry: the first has investigated the effects of formal policies aimed at increasing interaction and communication among functions. However, empirical studies have found little evidence for the effectiveness of policies alone (Dougherty, 2008; Seidel, 2007), and concluded that lack of communication is not the main underlying problem (Krohmer, Homburg and Workman, 2002). The second line of inquiry has attributed interfunctional conflict more to differences in mental models, language, and practice, and adopted a more behavioural stance rooted in the sensemaking literature (Maitlis and Christianson, 2014). However, while this approach has been more effective at accounting for interfunctional conflict, researchers have primarily focused on explaining why barriers emerge, rather than on how to overcome them (Dougherty, 1992; Carlile, 2002).

Study Aims and Contributions

This article builds on research on sensemaking and sensegiving to investigate how designers and marketers can effectively improve working relations and broaden each other’s mental

horizons through a process called ‘resourceful sensemaking’ (Wright et al., 2000). In particular, the practices used by designers and marketers to strategically deploy knowledge of each other to affect better NPD outcomes are examined. In so doing, our understanding of cooperation between marketing and design within NPD is advanced. This article also responds to calls for sensemaking research on how to overcome barriers to understanding between groups (rather than within groups) involved in problem solving (Brown, Stacey and Nandhakumar, 2008; Colville, Pye and Carter, 2013).

This research makes four main contributions to theory and practice. First, the results confirm that organizations experience tensions between specialization and cooperation among functions, because of differences in thought worlds. Second, such tensions can be reconciled by using three mechanisms – exposing, co-opting and repurposing – which enable employees to work across functional barriers to generate improved NPD outcomes. Third, positive outcomes of resourceful sensemaking, from greater openness to insights, to reducing dualisms and conflict, to the creation of innovative products are identified. Finally, ways to successfully introduce and manage design within market-oriented companies are explored.

Theoretical Framework

NPD Success and Interfunctional Coordination

New product success is contingent on cooperative behaviour between team members from different functional divisions involved in the development process (Calantone and Rubera, 2012; De Luca and Atuahene-Gima, 2007; Ernst, Hoyer and Rübsaamen, 2010). A high level of interfunctional coordination (IFC) means that functionally specialized groups work towards accomplishing specific NPD tasks and, ultimately, create value for customers (Sarin, 2009). Innovation researchers have identified several barriers to IFC including differences in knowledge and practice (Calantone and Rubera, 2012; Dougherty, 1992; Micheli et al. 2012).

Two approaches have been proposed to overcome such barriers: introduction of formal policies to enhance communication, and establishment of cross-functional teams to share language and practices (Carlile, 2002). However, empirical research has provided limited insight into how NPD practitioners can improve inter-group relations and positively affect NPD outcomes.

For example, researchers examining the effectiveness of formal policies aimed at information sharing or increasing communication flow have found little support for their ability to enhance IFC (Homburg and Pflesser, 2000; Kahn, 1996): far from generating or increasing cooperation, such policies often have a hygiene effect whereby they reinforce existing levels of willingness (Kahn and Mentzer, 1998; Maltz and Kohli, 2000). Other scholars have focused on the impact of reducing the psychological distance between functions through the creation of a shared syntax or language (Carlile, 2002), for example through the development of a unified culture around market orientation or design thinking (Beverland, Wilner and Micheli, 2015). However, such attempts have been found to come at the cost of effectiveness (Fisher, Maltz and Jaworski, 1997; Krohmer, Homburg and Workman, 2002). That is, conflict may decline, but so does the quality of NPD inputs and outputs, and overall firm performance.

Sensemaking and Interfunctional Coordination

The second approach draws broadly on the sensemaking literature and is adopted here. Sensemaking attributes IFC to different interpretive schemes¹, particularly to departmental ‘thought worlds’, defined as communities “of persons engaged in a certain domain of activity who have a shared understanding about that activity” (Dougherty, 1992, p.182). This research recognizes that tensions between functions are not caused simply by differences in language: for example, Micheli et al. (2012) found that, despite using similar terms and sharing NPD goals, marketers and designers attributed very different meanings to the same words.

Furthermore, researchers have shown that NPD could fail because “the characteristics of knowledge that drive innovative problem solving *within* a function actually hinder problem solving and knowledge creation *across* functions” (Carlile, 2002; p.442). Indeed, ‘thought worlds’ lead those within functions to focus only on the information that reinforces their worldview to the detriment of equally important insights necessary for NPD success (Dougherty, 1992).

This has led researchers to propose that differences in interpretive schemes should be recognized and managed (Griffin and Hauser, 1996; Sivadas and Dwyer, 2000) in order to increase IFC and, ultimately, to enhance NPD outcomes (Ernst, Hoyer and Rübsaamen, 2010; Fisher, Maltz and Jaworski, 1997; Homburg and Jensen, 2007; Sethi, Smith and Park, 2001). The main challenge lies with individuals’ willingness and capacity “to alter their own knowledge [and to] be capable of influencing or transforming the knowledge used by the other function” (Carlile, 2002, p. 445). However, apart from identifying the importance of shared artefacts, such as technical drawings, between disciplines with low psychological distance (e.g., engineering and R&D—see Carlile (2002)), few studies have focused on the practices needed to span boundaries and create knowledge between functions.

Based on the above review, the solution to conflict between functions in NPD would seem to lie in organizational actors’ capacity to create frameworks of meaning that overcome interpretive barriers through transforming, rather than simply transferring, knowledge across functional boundaries (Carlile, 2002; Dougherty, 1992). Although sensemaking focuses on “the process through which people work to understand issues or events that are novel, ambiguous, confusing, or in some way violate expectations” (Maitlis and Christianson, 2014, p.57), little has been done to understand how to manage multiple thought worlds or sensemaking units (teams, groups or functions) in order to achieve temporary alignment (Brown, Stacey and Nandhakumar, 2008; Colville, Pye and Carter, 2013; Seidel, 2007).

Resourceful Sensemaking

To overcome differences between functions, designers and marketers need to engage in both sensemaking and sensegiving or “the communicative process of influencing the meaning construction of constituents about a preferred organizational reality” (Gioia and Chittipeddi, 1991, p.442). Sensemaking is largely achieved through informal means and often involves paying attention to rituals, artefacts, language, stereotypes, and stories, while sensegiving is concerned with actors’ attempts to influence an outcome (Rouleau, 2005)². The term “resourceful sensemaking” is used to capture these related constructs. Resourceful sensemaking involves actors attempting to take the perspective of others in order to shape desired outcomes through the enactment of ‘horizon-expanding discourse’ (Wright et al. 2000). In this context, horizon-expanding discourse refers to each function’s capacity to understand and predict the actions of the other, resulting in improved cooperation, development of new solutions, and enhanced NPD outcomes.

Recent developments in knowledge management provide further support for our focus on resourceful sensemaking, suggesting that IFC depends on whether holders of a thought world possess a sufficiently accurate understanding of the other’s thought world (Huber and Lewis, 2010). Indeed, if marketers and designers lack this, they “are apt to make arguments or proposals concerning group processes and products that are technically, politically, or otherwise unacceptable to those whose mental models they do not understand, thus contributing to confusion, conflict, or stalemate” (Huber and Lewis, 2010; p. 10). However, little empirical research on the sensemaking practices to facilitate effective coordination across functions has been conducted.

Insert Figure 1 about here

Figure 1 presents our theoretical relationships. In summary, research identifies the benefits of specialization as well as the need for coordination among functions in NPD.

However, few solutions have been proposed as to how NPD practitioners could overcome the inherent limitations of their own thought worlds, create knowledge across functions, and simultaneously retain the specialized functional knowledge necessary for NPD success. Since the deep-seated source of conflicts between disciplines is born of thought worlds and practice, and formal policies to overcome this conflict have proven ineffective, scholars have recognized the need to create knowledge across functional boundaries. However, what is missing is an understanding of how to do so. This question is addressed by examining the practices used by designers and marketers to make sense of ambiguous situations, such as interactions with their counterparts, and use this knowledge to give sense to the NPD process. In so doing, an under-studied construct in sensemaking called ‘resourceful sensemaking’ is used to examine how marketers and designers work more effectively together to ensure better NPD outcomes.

Methodology

Consistent with previous work on sensemaking (Brown, Stacey and Nandhakumar, 2008; Colville, Pye and Carter, 2013) and inter-functional relations within NPD (Carlile, 2002; Dougherty, 1992), an interpretive approach to theory building was adopted. The research was conducted within an overall modified grounded theory research design, whereby research questions and further lines of inquiry were driven by theoretical sampling and constant comparison between the literature, data, and emerging theory (Fisher and Otnes, 2006). An initial reading of the relevant literature highlighted that tension between designers and marketers was common. This observation and the dearth of research on accounting for, and addressing, the lack of IFC between designers and marketers influenced the choice of research design.

Data Collection Strategy and Approach

Data Collection: Phase I: The research was conducted in three stages. In total 71 interviews (13 in phase 1, 44 in phase 2, 14 in phase 3) were conducted. First, 13 exploratory interviews, lasting on average 1.5 hours with recognized design experts in Australia (n=9) and New Zealand (n=4) were conducted. These individuals are practicing designers with at least 10 years of design experience and an established profile in design related education and/or thought leadership, often via consultancy and publishing (see Table 1 for details). This stage involved general discussion of the design-marketing relationship and the role of design in NPD, and, importantly, was used to identify firms for the main phase of the study. These interviews showed that beliefs about how to develop new products were embedded in the practices of marketers and designers; despite sharing market-oriented outcomes, differences remained over how to achieve them; and successful new products were the result of a balanced set of inputs.

Data Collection: Phase II: To explore differences in thought worlds in greater depth, a second phase of data collection was conducted. This phase involved interpretive interviews with designers and marketers working in the same firms (see Table 2). In total 44 interviews in 20 firms (across Australia and New Zealand) in a range of industries and in large and medium size firms were conducted. Regardless of size, the firms studied had separate design and marketing functions. Firms were selected on the basis of the recommendations of the expert informants and of our own reading of local industry periodicals (the first author read the entire run of Australian and New Zealand design-business publications *Monument* and *Prodesign*), which identified exemplars of innovation as well as a few notable failures. At a minimum, in each firm the head of design (n=20) and the head of marketing (n=20) were interviewed; in cases where more interviews were conducted, those involved in framing the strategic outcomes of NPD including CEOs (Cases 6 and 14) were also interviewed. These informants also provided useful historical background into firms that had really struggled

with integrating these two functions in the past. More New Zealand-based firms were selected because, at the time of data collection, the debate on ‘design-driven innovation’ was more advanced in that country and it enabled a more diverse sample of industries. Data collection was driven by a theoretical sampling logic whereby informants are selected on their ability to contribute to emerging theory. As such, data analysis occurred throughout and data collection finished when theoretical saturation was achieved—a situation where new data provides no new theoretical insights (Strauss and Corbin, 1998).

Interviews and Questions: Interviews were conducted at the informants’ place of work and lasted on average 1-1.5 hours, with an upper range of 3.5 hours. Following standard practice, to reduce interviewer bias, a mix of grand tour questions, whereby informants answer on their own terms, and floating prompts—specific follow-up questions to explore areas of interest or gain clarification on *in vivo* terms and processes were employed (McCracken, 1988).

Although our line of questioning shifted across the cases—consistent with the logic of theoretical sampling—the basis of each interview involved descriptions of NPD practices and interactions between marketers and designers. The hermeneutic tradition of data analysis whereby researchers remain sensitive to the underlying “ideological” structure of people’s discourse was used (Thompson, 1997). That is, the views designers and marketers espouse are reflective of their underlying assumptions. To identify such assumptions, during the interviews informants were encouraged to reflect on previous or current projects, including identifying the problem to be solved, the general approach used, the inputs that drove the process, and the nature of the interaction between functions. Informants were also asked to reflect on what made the process successful or unsuccessful, and what, if anything, they thought could be improved. Informants were probed for further information, including being asked to expand on tensions, reflect on the nature of any conflict, and project an ideal NPD

process. All interviews were recorded and transcribed, resulting in a final transcript of 685 A4 single spaced pages.

Further insights were gained into the shared practices and working relations through involvement in a range of workshops (of both an immersive and more reflective nature) including those hosted by the Design Management Institute (USA), the Design Council (UK) and the Design Business Association (UK), and the first author was a member of the senior advisory board of his institution's Design Research Institute, which enabled him to gain access to a range of industry-university partnerships over a two year period. The first author attended fortnightly strategy meetings, weekly workshops, and formal events hosted by the institute and participated in several commercial projects. Ethnographic field notes were taken during and after these workshops and analysed in the same way as the interviews.

Insert Tables 1 & 2 about here

Data Collection: Phase III: The third phase involved a population check with two design experts from Phase 1 (see Table 1) and 12 designers and marketers (including six interviewees involved in the second phase (see Table 2), and a further six invited to a round table conducted at the first author's university). These latter had similar levels of experience to those in the first phase and came from a range of industries including digital technology, fashion, industrial equipment, aeronautics, and medicine) whereby early theorizing and interpretations were presented to them. Sampling during this phase was driven by a population checking logic (i.e., informants were chosen if they had had direct experience of working across disciplines in NPD). Sessions lasted more than an hour and generated additional insight, often through the provision of examples of practices, which enabled us to further refine our findings.

Data Analysis & Trustworthiness

The various sources of data were managed using QSR International's Nvivo software. Coding was done by two of the authors, while the third challenged their interpretations; disagreements were discussed and usually involved a refinement of the emerging theory. Consistent with a grounded theory approach open, axial, and selective coding was used (Strauss and Corbin, 1998). Open coding involved reading transcripts and coding for themes. For example, the authors examined our transcripts for examples of conflict arising between designers and marketers, and passages detailing why this conflict emerged. Axial coding involved relating themes to one another – for example, building on the first point, further understanding as to whether the conflict reflected how individuals framed NPD challenges or the practices they used to address the NPD brief was sought. This process drove the authors to recode conflict into two categories – 'shape' and 'fit' (see Table 3 and discussion below). Selective coding ensured theoretical saturation by populating each theme with examples from the various cases and informants. In so doing, further examples of conflict driven by perceived relationship with the environment were identified as well as examples of the three practices described below.

Issues of research trustworthiness were addressed through standard grounded theory criteria: credibility, transferability, dependability, confirmability, integrity, fit, understanding, generality and control. To achieve these outcomes, two researchers collected and analysed the data; they were involved in population checking, theoretical sampling, and relating theoretical findings to informants' worldviews; they jointly undertook follow-up interviews with informants to clarify *in vivo* terms, grand tour questioning, dialectical tacking, and constantly compared theory and data; and presented initial results at research seminars.

Results and Discussion

The results are presented in three stages. First, the deep-seated roots of interfunctional conflict and how these result from very different ways in which designers and marketers frame NPD challenges are identified. Second, three resourceful sensemaking practices (exposing, co-opting, and repurposing) that help overcome barriers to IFC and lead to horizon expanding discourse are described. Third, examples of resourceful sensemaking, and discuss how NPD challenges were reframed and which outcomes were achieved are discussed.

Shape vs. Fit: Interpretive Schemes Underpinning Design/Marketing Tension in NPD

This section identifies the nature of conflict between design and marketing, and thereby contextualizes the resourceful sensemaking practices discussed in the next section. To explore how designers and marketers framed NPD problems each was asked to describe their respective NPD projects. The authors were sensitive to the ways in which both functions framed problems, the language they used, what they emphasized, and also what they left out. Drawing on Schein's (1991) seminal work on organizational culture and Dougherty's (1992) work on thought worlds, designers and marketers differed in their normative beliefs in relation to three main aspects: the relationship between the firm and its environment, temporal focus, and nature of truth and knowledge³. Together these beliefs form a coherent interpretive scheme that frames each discipline's approach to NPD, and informs their respective practices. The respective interpretive schemes were classified in terms of a dominant metaphor: 'shape' for designers and 'fit' for marketers. Table 3 provides examples of such schemes, which are then complemented by further passages throughout the article.

Insert Table 3 about here

Relationship to the environment. In describing their approach to NPD, designers and marketers differed significantly in their assumptions about the potential to diverge from existing market or product-category structures. As the passages in Table 3 describe, designers viewed such structures as largely permeable social constructions that could be created, shaped, and reshaped if need be. In contrast, marketers such as James viewed the same categories as largely fixed, exogenous givens that one had to respect. Such views do not necessarily reflect the stereotypical opposition between artistic and managerial logics dominant in the literature (Lockwood, 2007), but rather reflect different ways of framing the NPD challenge.

Schein (1991) identifies subconsciously held assumptions about the firm's nature in relation to its environment as a defining feature of a subculture. For example, framing all NPD challenges in terms of a "best way", Phil (Table 3) approaches each new project with the aim of creating new markets. In describing his perspective, Phil denigrates any approach that focuses on competitive parity and incremental improvement, as these will not protect the firm from lower cost imitations. At another case company, Dream Sleep, designer Jeremy was tasked with addressing a perceived gap in the firm's product line, that of more traditional furniture styles. Rather than pushing back against the request because it was inconsistent with the firm's design language, Jeremy studied the category, identifying why consumers desired tradition and why they associated tradition with certain styles and features. From this exercise the company concluded that customers associated 'traditional furniture' to "the look of European furniture from the 18th and 19th century". This insight helped Dream Sleep to reshape consumers' expectations and to shift their perceptions of tradition in a way that reflected the firm's brand position.

In contrast, when describing how NPD should be approached, marketing informants emphasized addressing existing market conditions including espoused needs, retailer

demands, and competitor offerings. Consistent with much marketing theorizing, our informants viewed these as “realities” and often condemned or stereotyped their colleagues in design for being naïve purists that failed to recognize commercial necessity (see John’s passage). Moreover, it is interesting to notice how James, Phil’s marketing counterpart at Stroller Co, frames NPD success very differently, as he stresses the need for products that fill gaps among current offerings, reinforce main brand associations, and achieve better performance outcomes on key points of parity. As with the designers, James frames the NPD challenge by drawing on normative assumptions about the firm’s relationship with the environment – in this case treating existing expectations as fixed ‘givens’ to be addressed.

Relationship to time. Another important difference between marketers and designers relates to assumptions about time. Since designers believed they could shape the environment, their orientation to time was to work back from the future (see, e.g., Phil’s denigration of responding to “what is good out there”). Joanne, for example, draws inspiration from a range of future scenarios, including trends highlighting changing social mores, climate change, and shifts in materials, technology, lifestyles and politics. In so doing, designers seek to future proof their innovations and to influence markets. In contrast, as presented in Table 3, marketing informants emphasize the knowable present, with Jason speaking about “short time frames” and stressing the need to stick “to what we think the consumer is saying now or what they have said in the past”. As such, marketers show a preference for products that meet existing needs, fill existing gaps, or match current competitors.

Nature of truth. Finally, both sets of informants had different assumptions regarding what was true and therefore what were valid ways of knowing. Since designers view the market as malleable and the future as a source of competitive advantage, they downplayed methods aimed at eliciting espoused needs. For example, Jerome (Table 3) describes his

approach to developing a successful line of elite wetsuits. Jerome dismisses input derived from what he identifies as traditional approaches focused on the present – i.e., typical marketing research instruments such as surveys and focus groups. Instead he concentrates on using tools that enable designers to identify latent or unknown needs. As such, information gained from tangential or peripheral sources are valued because they may provide insight into consumers' lifeworld.

Marketers also drew on specific types of information when addressing NPD briefs. In particular, marketers such as Jason and John emphasized data that provided them with the insights necessary to achieve fit with customer needs, retailer demands and/or competitive offerings. Thus, research focused on conscious responses to product attributes (as Jason states “what the consumer is saying now”), espoused preferences, and other “market realities”. While such approaches led designers to stereotype marketers as conservative and only interested in “me too” products, marketers engaged in their own stereotyping, seeing designers as out-of-touch with commercial reality or focused solely on their own subjective desires (see John's passage regarding colour preferences).

Section Summary: Taken together, marketers and designers frame NPD challenges in very particular ways—those reflective of and consistent with an interpretive scheme born of their training and role identities. Rather than engaging in the stereotypical “art for art's sake,” designers set specific parameters that reflect the logic of shaping one's own environment. Contrary to designer stereotyping, marketers do not deliberately seek “me too” products, nor are they necessarily conservative or lacking in creativity. Instead, marketers act in ways consistent with the logic of fitting the current environment. Both ways of making sense of NPD are critical for success, but represent barriers to shared understanding between designers and marketers engaged in innovation. On the other hand, this research identified several

instances in which designers and marketers were capable of engaging in resourceful sensemaking, thereby reducing interfunctional conflict and enhancing NPD outcomes.

Resourceful Sensemaking: Three Practices

Despite mutual stereotyping and emphasizing “one best way” for NPD, designers and marketers spoke of the need to work together, and described situations where NPD failure had been caused by the incapacity to address multiple performance requirements and by conflict among functions caused by differences in views. This acknowledgment led us to explore how designers and marketers influenced each other in order to improve collaboration. Through our analysis three practices leading to resourceful sensemaking and the achievement of horizon expanding discourse were identified: exposing, co-opting, and repurposing. Table 4 provides detail of each function’s original concept for NPD, an example of resourceful sensemaking (apart from Lounge Co, all three practices occurred at least once throughout the NPD process), the subsequent shared product concept, and details of results achieved.

Insert Table 4 about here

Exposing. Throughout their accounts, informants described how changes to interaction practices, NPD processes, and physical layout of workspaces were necessary for improved relations between marketing and design (and other functions). Consistent across their discussion was an emphasis on increased day-to-day awareness of one another’s contribution, language, and practices. Exposure was not aimed at generating more communication; rather, the intent was to reveal the interpretive schemes of designers and marketers to each other. In line with extant research on sensemaking, exposing involved

formal and informal mechanisms, including planned interaction sessions and extemporaneous engagement with each other's practice, as Don and Adam describe below:

Don (Comfy Chairs, Head of Design): "Only at our official stakeholder reviews [a firm process that brought together all functions involved in NPD] would we show them what we'd done to a degree we'd get it almost to a fully designed product with all the drawings before we handed over to our process engineers or our manufacturing plant; and it was based on assumption that they could produce it, and so then it becomes their problem. Whereas now it's about just getting the design studio off its pedestal a little bit and opening up the communication channels."

Adam (Comfy Chairs, CMO): "[Now] we've got a workshop right next to our studio ... we're just as likely to be out there bogging something up and spraying it and knocking it together as I am to be writing a forward marketing strategy."

During the interviews, Don and Adam described how their firm shifted from a pure design focus, where they were known for award winning designs (Don described the design team as "furniture geeks"), but average market performance, to one focused on sustained commercial success. Essential to this shift was a widespread move away from the firm being designer-centric, to one in which product design was retained as a core capability, albeit within a strategic framework where other functions were given equal footing in terms of input into NPD. In Don and Dave's (see below) respective firms, exposing was used to improve the commercial viability of design-centric innovations. At Home Help, instead, the CEO utilized exposure to bring a greater design focus to the firm by elevating this function's status above what informants described as a "styling back office".

Although exposing involved an attempt to outline and get agreement over the brief, the main emphasis was to make participants reflect more critically on their approaches, challenge assumptions, and provide the raw material for further resourceful sensemaking practices. In

particular, exposing allowed different functions to make sense of strategic NPD challenges (e.g., Smart Women's CEO wanted staff to understand how critical new fashion lines were to refreshing the fortunes of their struggling local iconic brand) as well as the interdependence of all those involved in NPD. For example:

Dave (Sleek Suits, CMO): "I think it's healthy to have people rub each other up the wrong way. This is an example: a salesperson will come in and say "but this is what the retailer wants and this is what the customer wants and this is why it's not working", but unfortunately they're a year behind because they're listening to that retail shop and what they've sold for years, whereas a marketing person might say "how are we going to get them thinking in a different colour or style or way of presenting that product?", and then the designer will be thinking "well, wait, that's one part of it, forget about what colour is here and now or whether it sold last year: we need something that makes people fall in love". So those three areas very much complement each other, because there's still things that you cannot lose sight of, such as what sold last year...."

During our engagement in design projects, exposed to such sessions occurred on multiple occasions. These meetings were often intensely uncomfortable (often because they challenged one's identity or functional expertise), heated, but also enlightening, and forced participants to re-examine preferred solutions. Exposing was motivated by the recognition that much of the day-to-day practice of NPD involved designers and marketers working in isolation. Informants saw this as a natural and necessary part of the process, but were also aware of the risk of falling back on their own thought worlds and losing sight of the array of goals a project must achieve in order to be successful. For example:

Walter (Shower Co, Head of Design): "I don't really want designers to sort of fluff away and create something that (a) isn't saleable and (b) is too expensive. ... But they're really isolated in what they're doing and all they do is really get to and fro with

the marketing teams ... We work really well, but there's always, not so much conflict, but wariness of direction. ”

Walter's quotation describes the logic behind the exposing practices he implemented when he became responsible for Shower Co's NPD process. Exposing is not focused on building a shared language (Carlile, 2002); rather, it aims to create an appreciation of each function's unique contribution to overall NPD success. Consistent across our cases was the use of exposing to help each party make sense of the need for multiple inputs into a project, and those other functions had different, but valuable viewpoints and practices. Moreover, exposing was practiced to provide designers and marketers with the insights necessary to engage in sensegiving. Although exposing allowed one to understand another's perspective, by itself it was insufficient to overcome knowledge boundaries and affect resourceful sensemaking.

Co-opting. The second practice is co-opting. The informants deliberately co-opted the tools, concepts and language of each other in order to enhance the credibility of their requests, allow recipients to make sense of views different to their own, and therefore create a “safe” environment in which to draw on inputs and deploy practices at odds with their interpretive schemes. As noted in Table 4, co-optation involved designers and marketers primarily reframing their insights in each other's language in order to ensure their concerns were high on the agenda of their opposite number. Much of the co-opting discussed involved insights from target users. Here informants were actively reworking their data in terms that reflected their counterparts' assumptions about time and truth. Thus, marketers usually reframed their insights in the language of user centred design and personas, whereas designers recast their insights in the language of market segments and customer touch points:

Molly (Senior Automotive Designer): [I: And how did you research those concepts?]

“Just instinct. It's instinct that marketing don't have. ... [I] talked to [target consumers],

looked at what they were interested in, spoke to the companies that they're purchasing from. I went to Nike and Reebok because it's a much quicker turnaround in the footwear industry and so I wanted to look at light weight construction, materials, fabrics, manufacturing processes and also to speak to the designers because the designers in the footwear industry are really hip compared to the ones in the automotive industry." [I: *What did you do with that?*] "For example, with the SUV I put together trends in other areas. I had footwear, ski, snowboards; I put together a board that talked about the technologies. They were illustrative and they were documented in words about how that could be applied to the automotive industry, so I had for example "Sports Chic," "Techno Head". I presented that to marketing, I just took photos of a customer, I had the product and I had what can be done in the automotive industry."

Molly, interviewed in phase 3, was tasked with designing a range of small vehicles targeted at the youth segment - her CEO wanted a new range of cars that would break with the firm's traditional focus. Here Molly discusses how she managed to design a new range of automobiles for a company with a powerful, but conservative marketing team, which had a history of diluting original design concepts. In this passage, she describes a number of aspects of resourceful sensemaking: although she stereotypes marketers as lacking in instinct or creativity, she actively uses this insight to enhance the credibility of her case. Therefore, even though her original research approach reflects the logic of shape, Molly transforms this information into a form marketers can easily buy into—lifestyle segments.

Marketers engaged in similar co-opting practices in order to influence designers more effectively. For example, a senior marketer (observed during the ethnographic phase) discussed a variety of ways in which she co-opted the language of design in order to ensure NPD concepts fit better with the needs of the target user:

Hannah (FMCG CMO): “We’ve defined personas as concrete representations of our core consumers, based upon real data. I think that is critical with the internal community that we’re speaking to such as our designers; if they think that we’ve created segments about some *faux* person, it can be dismissed. ... What we’ll say to the product designer [is] “are we still thinking about Joanne? I completely lose her in this picture.” Or “let’s imagine that she’s in the room right now; what would she be thinking when we come to her with this as the idea? Are we describing it in a way that she can actually understand?” Again, a vehicle for bringing real consumers closer to the product’s innovation, design, development and marketing process.”

Hannah’s approach mirrors Molly’s, as they both draw on knowledge gained through being exposed to, respectively, designers and marketers. Just like Molly, Hannah deliberately draws on her knowledge of the other group’s preferred ways of working to repack her own practice (segmentation) in a form designers can feel comfortable with—a persona, a typical design tool (Cross, 2007). Also, Hannah’s knowledge of designers enables her to give sense to the design team by communicating in an empathetic way.

Co-opting is an intentional strategy aimed at horizon-expanding discourse. Numerous incidences whereby designers and marketers veered away from their typical ways of working and framing NPD-related issues were identified (see Table 4 for examples). For instance, at Fine Cloth the marketing and design teams were at odds over whether to sell a new product range made of natural fibre to cloth makers and fashion houses. The design team wanted to move away from existing ranges and competitor offerings, and create more sustainable products to gain an edge in the market. Although the marketing team believed in the branding concept, their main focus was on improving product quality since the main buyers - producers of cloth - identified the high variation in quality as a major barrier to adoption of natural fibres. Realizing the design team would not be open to addressing such overt

customer claims, the marketing manager reframed this insight in terms of a user experience design study, identifying all the flaws in the supply chain that led to problems of consistency in quality. As a result, both began a wider conversation about creating a holistic offering in which the product was supported with traceability and sustainability features, and through close working relationships with key buyers, in contrast to their historical approach.

Designers at Shower Co also deployed co-optation in order to develop a breakthrough range of new to the world shower systems. Although the marketing team understood the need to move away from low priced functional designs, their consumer trends analysis identified that the answer lay in functional products with European styling. Marketing originally viewed the new head of design with suspicion and saw his product ideas as aimed at winning design awards rather than meeting market needs. To counter this, the design team commissioned a small ethnographic study on shower use, which found that consumers viewed showering as both functional and spiritual activity, and that current shower systems frustrated them as they failed to provide enough space and storage capacity. As a result, the marketing team expanded their view of showering to focus on how innovative design could deliver a better consumer-focused experience.

At Kitchen Friend, Marketing Director John regularly infused fit considerations into his design team's approach to NPD. John's primary aim is to ensure designers "compromised", that is, they had to design with clients' needs in mind. However, John recognizes that designers would not welcome the word "compromise", as they would view it as concept dilution. Since John's main concern is that new product concepts do not stray from the brand's recognized aesthetic, he reframes brand driven requirements in terms of a need for a consistent design language. One example proffered by the design team involved changing a new kitchen storage container they all loved to make sure it could be stacked with earlier product models (a client requirement communicated to John). Because of John's emphasis on

a design language, rather than viewing the change as being driven by conservative marketers, the design team shifted focus to reinforcing the brand's leadership in durable interlocking containers (the subsequent product won several design awards and featured in an exhibition on "antiques of the future").

Co-opting is an important practice, as it reflects understanding and deliberate leveraging of another's interpretive scheme to overcome barriers to working together. Co-optation was particularly effective, because it ensured information was presented in a form that was credible to the receiver. This practice reflects resourceful sensemaking, since it involves both taking another's point of view and deploying insights to influence it.

Repurposing. While exposing identifies the nature and reasons for difference among functions, and co-opting requires consciously reframing one's own insights into the language of the receiver, repurposing involves deploying the very practices used by members of the other function in the hope that they will come to similar conclusions, but in a way credible to them. Table 4 provides examples of re-purposing and the outcomes of such practice. In each case, re-purposing involved a high level of trust between designers and marketers, and conscious understanding of what the other considered to be valid ways of knowing.

For example, in Stroller Co the marketing team sought to impose fit considerations in the initial stages of development of a new stroller by identifying existing offers and espoused customer needs through focus group research. To avoid producing incremental innovations that could easily be copied, the design team gave initial versions of their prototype to marketing staff members who fit the target market (young parents). By experimenting with the prototypes, the marketing team realized the need for a product to fit in with the customer's life world, which involved more than just being in the formal role of parent, but also other identity goals such as healthy lifestyle, and for a product range that could adapt to changing family stages, for example the addition of another child. In this case, designers

turned marketers into mystery shoppers, relying on their expertise to arrive at the need for a brand new approach to the category, which eventually resulted in a radically innovative in-line stroller.

The following passage describes another example of re-purposing, which involves the deliberate hijacking of a marketing practice regularly reviled by the designers interviewed. Designer Jerome regularly reported frustrations in dealing with marketers because of their reliance on voice of the consumer analysis that failed to identify the need for more radical product innovations. As with many designers, focus groups were seen as the main practice that undermined shape-driven concepts. However, Jerome took a different approach, using these tools to his own advantage:

Jerome (Sleek Suits, Designer) [I: Do you use those research tools [focus groups and surveys]?] “Absolutely. I mean, marketers need process. And you’re right: consumers, if you ask them, they’ll tell you what they know today. You can actually see it because we were in a research group the other day and we were talking to some consumers about how they might use the product and they told us about how they use it today because that’s the way the brand had represented itself. And we’re trying to move it [the brand] on. When we showed them pictures of other usage occasions they all said “oh yes, I suppose you could do that, I’d never thought of that” and they [marketing] would never have gone to that data, they don’t know otherwise. Marketers like to deal in certainty and they think by putting focus groups into the mix they’re going to get a degree of certainty.”

As Jerome describes, repurposing provides the basis for joint discovery, since marketers and designers must co-create new value propositions driven by the possibilities identified in the focus group. Likewise, to achieve “compromise”, John (CMO at Kitchen

Friend) often repurposed the techniques preferred by designers to expand on their product concepts in way sympathetic to issues of fit. John describes the logic behind his strategy:

“We are considered to be an accessory manufacturer. So we’ve got to fit in with what new kitchens are coming up in the next two years. And that’s at the whole design stage of concept. But then you get into the market and you’ve got a consumer who is quite different, because consumers don’t know what’s happening in two years. So [we spend a lot of time] in store, you know, standing, loitering, watching these consumers touch and feel. What is it [that] attracts them to the fixture in the first instance, and [what makes] that fixture with competitors’ products more attractive than ours and why.”

John’s passage describes his desire to develop products that achieve two goals: designing accessories that will complement future kitchens (shape), and not stray too far from current consumer expectations about the brand or product class (fit). Understanding that designers do not see much value in marketing tools, he utilizes an approach favoured by interaction design, which focuses on understanding *in situ* decision-making. In so doing, he repurposes observation and shadowing of customers to place designers in a retail space (something they admitted rarely doing); confident they would identify important attributes contained in current offerings that needed to feature in any future product concept, no matter how innovative. Although not consciously aware of John’s deliberate repurposing, his design counterpart Aaron confirmed that such insights had helped the design team rethink product concepts and this resulted in what he considered as better designs.

Another example of repurposing comes from Jerome’s marketing counterpart Dave (Sleek Suits), who often felt that many sportswear designers were too focused on the performance of wetsuits in terms of weight, streamlining, and durability, to the detriment of comfort. Recognizing that designers’ awareness and empathy with these considerations had to be generated *in situ*, Dave pushed various groups to participate in inter-company triathlon

events. The design team was provided equipment from competitor brands as well as their own. The differences in experience led designers to complement technological advances in materials with considerations of comfort in high performance conditions. In expanding their views about the product, designers were able to develop a range of wetsuits that broke the false trade-off that existed in the industry between fashion-driven suits and high-performance wear. This resulted in increases in market share and brand loyalty.

Repurposing represents a deeper level of sensegiving, because it explicitly recognizes that knowledge is embedded in the practices of functional groups (Carlile 2002), and it involves using another group's tools as a means of joint knowledge development. In contrast to co-opting, which involves one party transforming its own insights, repurposing is more open-ended, because the initiator is reliant on the active engagement of the other party.

Outcomes of Resourceful Sensemaking

The aim of resourceful sensemaking is to expand participants' mental horizons about NPD beyond what provided by their own thought world (Wright et al. 2000). That is, resourceful sensemaking should result in participants expanding the breadth and diversity of information they draw on and, ultimately, ensure they broaden their views regarding NPD (Dougherty, 1992). The result should not be that one party simply adopts the view of the other; rather, the shared NPD concept should be transformed (Carlile, 2002).

To assess the outcomes of resourceful sensemaking, informants were asked to compare what they regarded as successful and unsuccessful projects. Success or lack thereof was defined by the informants in terms of whether the innovation addressed the firms' strategic goals as set out in the brief. For some firms success involved mainly responding effectively to the demands of external stakeholders (such as retailers) without diluting the firm's brand position or design language (Cases 2, 5, 9, 11, 18, 19); for others, success

primarily involved developing products that positioned the organization away from low cost imitations (Cases 6, 7, 10, 12, 13, 15, 20); for others again, improved commercial results was the main aim (Cases 1, 3, 4, 8, 14, 16, 17). As part of this process, the authors explored both the positive and negative experiences designers and marketers had when interacting with one another, and related these to the achievement of NPD outcomes.

Table 4 provides information on how marketers and designers originally framed the NPD challenge; examples of resourceful sensemaking; the transformed NPD concepts shared by both parties; and performance outcomes, in line with the strategic aims of the projects discussed. In summary, the three resourceful sensemaking practices created a safe environment for receivers to embrace new ideas, because they were either derived from one's thought world, or communicated in a credible form.

Horizon Expanding Discourse: The capacity to enact horizon-expanding discourse emerged as a critical condition for overcoming interpretive barriers in NPD. The discussion below, between the heads of design and marketing at a large office furniture manufacturer, provides an example of how resourceful sensemaking results in an appreciation for the views that others bring to NPD. The conversation identifies how each function takes ownership of the other's concepts and interests, and uses them resourcefully to ensure better NPD outcomes:

Adam (Comfy Chairs, CMO): "There is tension at times. Design is always going to push us and they should always be pushing marketing a little bit further than marketing want to go, and then marketing need to be careful that they don't pull them too far back to meet all the objections that they might face in the marketplace. Most of our objections are not from the consumer. They're from our own internal networks and our own distribution structures, so design's job is to try and push beyond the comfort level.

Marketing's job is to pull that back to what's right without pulling it back any further than they need to. So the tension there is whether we get that gap right.”

Don (Comfy Chairs, Head of Industrial Design): “Absolutely, and I actually think a bit of tension is a really healthy aspect to the whole thing. ... It makes you think harder about why you're doing things and justifying them and until you make those trade-offs you haven't really challenged your thinking that hard. ... You know, right through the organization, there's enough tension there to have a good healthy debate and really encourage the right ideas to bubble to the top. If we all agree all day, every day it might be a bit difficult to make good progress.”

Adam and Don's company had usually dealt with architects who were open to a 'design for design's sake' philosophy and who were happy to purchase aesthetically pleasing products without giving much consideration to price. However, more recently Adam and Don had to work with project managers who emphasized either cost minimisation or the strategic value of purchases. As a result, tensions in the company could arise between marketing, which pushed for greater alignment with buyers' needs, and design, which was wary of producing “me too” products. Through resourceful sensemaking, however, both parties came to the realization that they had to create furniture that could enhance the work environment and effectiveness of knowledge workers. This concept not only drove a new range of furniture, but also refreshed the firm's brand identity.

Drawing on Alternate Inputs: Drawing on alternate inputs is crucial to overcome barriers between thought worlds (Carlile, 2002; Dougherty, 1992). Table 4 highlights the shift in how each function framed the NPD project. Resourceful sensemaking in itself did not create the shift; rather, it triggered a process of reflection, re-examination of assumptions, and desire for non-typical inputs for the different thought worlds that allowed for the

development of a shared product concept, which addressed issues of shape and fit, and led to improved NPD outcomes.

In firms seeking to balance external demands with the firm's identity in terms of brand and design logics (cases 2, 5, 9, 11, 18, 19), transformations involved resolving either/or dualisms. For example, at Swift Ships (case 20) marketers were faced with customer complaints regarding the firm's emphasis on speed at a time when fuel costs were at historic highs (potentially leading to lost clients). Faced with the need to challenge the firm's design sensibility, marketers conducted focus groups with customers and reframed the insights in the language of user experience design. This helped designers to focus on how customers could save on fuel while maintaining relative speed advantages over competitors. Because Swift Ships were particularly light and aerodynamic, they rode higher in the water than slower ships produced by competitors, leading design and marketing to focus on the multiple benefits of aerodynamic design instead of sheer speed and power.

For firms trying to respond to low cost imitators (cases 6, 7, 10, 12, 13, 15, 20), information highlighting unmet latent needs triggered new insights and often radically new product concepts. In these cases, marketers often used information showing the limitations of existing product concepts in the context of users' lived experience to trigger new studies about what 'fit' would look like. Examples of this are contained in our discussion of co-optation at Shower Co and Stroller Co (cases 10, 12). Another example is Spark Co (case 15) where marketing's emphasis on pure functionality was driven by their direct contact with users (electrical engineers). However, designers believed that engaging in a functional creep strategy would be problematic for a small firm, because convergence would drive down prices. In this case, designers co-opted focus groups to gain responses to some early mock-ups, and this led marketing to realize that users were frustrated when it came to repairing or using large electric generators. This triggered a discussion between marketing and design

about how design could add value beyond product appearance, which resulted in the further study of users' often emotional relationships with Spark Co's products.

Finally, for firms mainly seeking improved commercial results (cases 1, 3, 4, 8, 14, 16, 17), the shift very much depended on power relations within the firm. At Comfy Chairs and Sleek Suits (cases 1, 3), for example, design's dominance had resulted in the creation of award winning products, but poor sales. Thus, resourceful sensemaking involved marketing drawing design's attention to information sources addressing fit related issues. In Medi-Tech (case 8) the opposite was true, so design focused on infusing shape related information by involving marketers in observations of surgeons in action, hoping that they would identify the opportunity for high quality customized equipment. This exposure led the marketers to think more deeply about this segment and come to the conclusion that appealing to the surgeon's identity as a skilled craftsperson was a viable value proposition. Therefore, both functions worked together to develop customized equipment and supportive marketing materials aimed at addressing surgeon's desired sense of self.

Counter Example: In contrast, when informants described projects they deemed unsuccessful, they often identified unmanaged conflict between functions as the main reason. For example, at Lounge Co (case 7) the designer lamented how marketing always "made projects worse", diluted her concepts, and pushed back against innovations, such as the use of sustainable materials. The firm, a long established local furniture manufacturer, was experiencing declining sales due to the emergence of low cost offshore competitors with better styling. This meant that the company had to choose between developing a new range of products that had a clear point of difference and relocating production offshore to achieve price parity. Interestingly, during our interview the marketing manager stated that only the first option would be viable, and that the use of sustainable materials could provide a clear point of difference in the market. Moreover, he seemed aware that the marketing tools that

had served him so well in the past would not be as effective in identifying innovations necessary to move away from competitors. Despite this, the incapacity of both marketers and designers to engage in resourceful sensemaking led to the failure of the product, and, ultimately, to the firm being acquired by a foreign competitor. In this case, although both functions shared the same goal - innovations with sustainable materials at their core – results were very disappointing, because each function could not and would not transform its concepts into forms the other felt comfortable with.

Conclusions

This study examines how designers and marketers enact resourceful sensemaking to enhance interfunctional coordination (IFC). Our analysis confirms that tensions across functions are often generated by differences between how marketers and designers frame NPD related decisions. Our findings also demonstrate that while still drawing on different thought worlds, designers and marketers are capable of creating a common framework of meaning.

Theoretical Contributions

This research confirms and advances current understanding of NPD and IFC in four main ways. First, it shows that firms can build greater understanding across functions and achieve more effective cooperation while retaining the benefits of specialization. Extant literature demonstrates that IFC can make a positive contribution to NPD outcomes, but how to achieve it remains an enduring practical and research challenge. Moreover, as marketing scholars have found (Fisher, Maltz and Jaworski, 1997), there is an apparent paradox whereby reductions in psychological distance between functions result in enhanced perceptions of relationship effectiveness and information use, but also in decreased innovativeness. This study demonstrates that functional groups can cooperate effectively, without reducing

psychological distance through the adoption of a single organization-wide logic, such as “customer centricity” or “design thinking”.

The second contribution is the identification of three mechanisms – exposing, co-opting and repurposing - by which employees can work across functional barriers to generate positive NPD outcomes through the enactment of horizon-expanding discourse. Existing research has often accounted for the *why* of conflict, but provided little insight into *how* to overcome such conflict and achieve improved outcomes. To address this gap, recent studies examining the cultural elements of market orientation and market learning that identify managing for interfunctional meaning as being crucial to collaboration and synergistic outcomes are drawn upon (Cayla and Arnould, 2013; Gephardt, Carpenter and Sherry, 2006). In particular, exposing emerged as a formal means to bring to light differences between team members, including differences in semantics, practice, and interpretive schemes. Exposing also resulted in functional actors at least realizing, if not appreciating, the importance of each group’s approach. Thus, exposure provided both the motivation for resourceful sensemaking and the raw materials from which actors could engage in the other two practices.

Co-optation and repurposing involve a deeper understanding of another’s preferred practices and cultural assumptions. For example, in co-opting the language of design, marketers create an integrating device by which designers can factor in fit-based considerations into concepts, prototypes and final products. Similarly, designers can co-opt the language of marketing to effectively communicate a shape-based perspective. Therefore, co-optation enhances the credibility of marketer- or designer-driven input because such information gives sense to the receiver. However, co-optation is primarily a unidirectional (i.e., the sender does all the transformation) signalling mechanism where the sender draws on an understanding of the receiver’s interpretive scheme. In contrast, repurposing is a more open-ended approach, relying on what is proposed to be a deeper level of knowledge about

the receiver that enables the receiver to discover the validity of another's insights through their preferred practices. Crucially, all three mechanisms were not used either casually or unintentionally: informants made conscious, deliberate efforts to establish effective connections with individuals belonging to the other functional group.

Thirdly, this study provides evidence of the outcomes of resourceful sensemaking (Wright et al. 2000). Although some have described the role that shared physical artefacts play in sensemaking, their focus has been either on intragroup sensemaking (Stigliani and Ravasi, 2012), or on sensemaking among functions with low levels of psychological distance, and considered knowledge transformation mainly as the search for and use of a shared tool (Carlile, 2002). Likewise, research on resourceful sensemaking is silent as to how one goes from appreciating the perspectives of others to enacting horizon-expanding discourse. The practices identified enabled organizational actors to anticipate each other's objections, to recognize preferred ways of doing and knowing as well as barriers to acceptance, and to enact horizon-expanding discourse to improve IFC and therefore NPD outcomes. The findings show how resourceful sensemaking helped reconcile either/or dualisms, identify unmet consumer needs - which then led to the creation of innovative products - and promote shifts in power relations within the firm to achieve greater equilibrium among functions.

Finally, this article addresses Sarin's (2009) call for research on overcoming communication barriers in NPD and gaps in our understanding of the management of design within market-oriented companies (Griffin, 2011; Noble, 2011). While the thought worlds of designers and marketers may remain quite distinct, it is their complementarity that matters—for example in terms of identification of competitive opportunities, temporal foci and inputs in the NPD process. Exploiting such complementarity is crucial to NPD success.

Managerial Implications

The findings have two main implications for managers seeking to improve coordination between functions without sacrificing the diversity of insights required for successful NPD. First of all, exposing, co-opting and repurposing could be effective practices to achieve effective interfunctional coordination. As demonstrated by organizations considered, resourceful sensemaking involves recognition of alternate perspectives, and reflexive thinking requiring the realisation that one's own views may represent a barrier to others' understanding and communicating emotionally (Cayla and Arnould, 2013; Gephardt, Carpenter and Sherry, 2006). Table 4 includes numerous examples of specific practices from exposing, obtained by reframing corporate priorities, to co-opting and repurposing tools such as focus groups, prototypes and storyboards.

Secondly, during the interviews informants discussed the policies around every day working practices (observations helped triangulate these views). A common set of policies regarded the reduction of physical barriers between functions. As exemplified in the passages from Don and Adam at Comfy Chairs and from Walter at Shower Co, several firms opened up the internal workings of design workshops or marketing strategy, and encouraged input into and engagement with each other's activities. Common to the most seasoned firms vis-à-vis resourceful sensemaking were initiatives focused on rearranging workspaces to ensure a close proximity between individual designers and marketers to such an extent that physical evidence of particular functions was hard to find (i.e., there was no physical marketing or design department). Typically these policies involved seating individual marketers next to individual designers and salespeople and so on, rather than simply placing the design office next to the marketing office.

Limitations and Further Research

The findings have several limitations. First, informant insights are historical and therefore potentially subject to recall bias and the limits of memory. While a purely ethnographic design would have overcome this limitation, it would have limited the potential sample size and diversity of firms available to study. Second, the authors deliberately focused on experienced marketers/designers. Although some of the informants struggled to engage in resourceful sensemaking, the authors are unable to offer insight into the necessary cognitive and emotional intelligence skill sets. Action research with individuals and teams could be used to trigger reflective learning on behalf of those able to engage in resourceful sensemaking; also, the same interventions could be used to reflect on the barriers that discourage this form of sensemaking among those who struggle with empathetic practices. Third, while the focus herein is on generalizing to theory, quantitative testing and experimental studies drawing on our results could be used to explore antecedents of such practices among individuals as well as any organizational moderators.

This article focuses on the mechanisms that allow informants to engage in resourceful sensemaking. Research is also needed on the mind-sets, capabilities and skills needed for resourceful sensemaking. Future research is required to examine other ways in which actors from different functional groups may engage in resourceful sensemaking. Although these could entail further studies at the marketing-design interface, future research could explore other IFC flashpoints including those between marketing and R&D, sales, operations, logistics, public relations, and finance. Finally, quantitative studies could estimate the effects of resourceful sensemaking on NPD outcomes and business performance.

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Table 1: Phase 1 Expert Sample

Pseudonym (Location)	Professional role	Experience	Primary client industries
Donnie (NZ) *	Owner design consultancy, practicing designer, senior member of national design council	30+ years	Technology, food, fashion, services
Molly (A)	Owner design consultancy and practicing designer	10 years	Automotive, household equipment
Mick (NZ) *	Design writer and historian and former designer, senior advisor national design council	40+ years	Household equipment and industrial tools
Jeffrey (A)	Design educator and active designer	25 years	Automotive and engineering
Anna (A)	Design educator and practicing designer	10 years	Furniture and engineering
Annabel (A)	Owner design consultancy and practicing designer	10 years	Fast moving consumer goods, professional services
Joel (NZ)	Owner design consultancy and practicing designer, senior member national design council	20 years	Business to business
Martin (A)	Owner design consultancy and practicing designer	25 years	Airlines, major consumer and business services
Brandt (A)	Owner design consultancy and practicing designer	25 years	Fast moving consumer goods, fashion
Maude (A)	Owner design consultancy and active designer	35 years	Government, architects and furniture
Vladimir (A)	Editor major design magazine and former designer, senior advisor national design council	15 years	Print media and fast moving consumer goods
Jackie (NZ)	Design educator and practicing designer	15 years	Technology and consumer services
Dave (A)	Design educator and practicing designer, senior member national design council	40 years	Furniture and automotive

*Interviewed in population checking phase

Table 2: Phases 2 and 3 Informant and Company Details

Case	Pseudonyms (Number of Informants)	Industry	Employees	Estimated Turnover (US\$Million)
1 Comfy Chairs	Adam, Don (2) #	Office Furniture (NZ)	250	51-100
2 Swift Ships	Larry, Rick (2)	Ship Building (A)	220	51-100
3 Sleek Suits	Jerome, Dave (2)	Sportswear (NZ)	50	51-100
4 Green Clean	Elke, Ang (2)	FMCG (NZ)	50	0-50
5 Nature Clothing	Joanne, Edith (2)	Fashion (NZ)	150	200-300
6 Home Help	Mark, Craig, Ian (3)	Appliances (NZ)	4,000	1,500+
7 Lounge Co	Donna, Tony (2) #	Consumer Furniture (NZ)	500	100+
8 Medi-tech	Joseph, Stephen (2)	Medical Equipment (NZ)	30	0-50
9 Dream Sleep	Jeremy, Mo (2) #	Consumer furniture (NZ)	120	0-50
10 Shower Co	Walter, Sarah (2)	Bathroom fittings (NZ)	400	201-500
11 Kitchen Friend	John, Aaron (2)	Crockery (NZ)	200	51-100
12 Stroller Co	Phil, James (2) #	Baby Equipment (NZ)	150	201-500
13 Fine Cloth	Gary, Paul (2) #	Wool (NZ)	50	401-500
14 Haute Cuisine	Michael, Anna, Jasper, Llewyn (4)	Food (NZ)	45	101-150
15 Spark Co	Philip, Angela (2)	Industrial Electronics (NZ)	120	0-50
16 Street Bags	Caroline, Emma (2)	Bags (A)	70	101-150
17 Craft Gear	Andrew, Karen (2)	Stationary (A)	120	101-150
18 Smoothie	Gemma, Mitch (2)	Food and Beverage (A)	80	101-150
19 Style Corp	Jason, Tracy (2) #	Fashion (A)	150	201-500
20 Smart Women	Jane, Edi, Pete (3)	Fashion (A)	120	201-300

NZ = New Zealand; A = Australia; # Re-interviewed in final population checking phase

Table 2: Phases 2 and 3 Informant and Company Details

Case	Pseudonyms (Number of Informants)	Industry	Employees	Estimated Turnover (US\$Million)
1 Comfy Chairs	Adam, Don (2) #	Office Furniture (NZ)	250	51-100
2 Swift Ships	Larry, Rick (2)	Ship Building (A)	220	51-100
3 Sleek Suits	Jerome, Dave (2)	Sportswear (NZ)	50	51-100
4 Green Clean	Elke, Ang (2)	FMCG (NZ)	50	0-50
5 Nature Clothing	Joanne, Edith (2)	Fashion (NZ)	150	200-300
6 Home Help	Mark, Craig, Ian (3)	Appliances (NZ)	4,000	1,500+
7 Lounge Co	Donna, Tony (2) #	Consumer Furniture (NZ)	500	100+
8 Medi-tech	Joseph, Stephen (2)	Medical Equipment (NZ)	30	0-50
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12 Stroller Co	Phil, James (2) #	Baby Equipment (NZ)	150	201-500
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18 Smoothie	Gemma, Mitch (2)	Food and Beverage (A)	80	101-150
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20 Smart Women	Jane, Edi, Pete (3)	Fashion (A)	120	201-300

NZ = New Zealand; A = Australia

Re-interviewed in final population checking phase

Table 3: Shape and Fit - Design and Marketing Interpretive Schemes in NPD

Cultural Assumption	Shape (Design)	Fit (Marketing)
Relationship to the environment	<p><u>Market categories are malleable and can be shaped and created</u></p> <p><i>Phil (Stroller Co, Head of Design)</i> “What is the simplest way to appropriate a market? We think the simplest way is to create it. So we focus not so much on new products as creating whole new categories of products. ... The inline buggy was a category we created and we’ve since fleshed out to, in part, provide resale in customers with great features and benefits across different price points but also in part to keep competitors out of that space. ... We think a lot in terms of creating a new category first of all, rather than going to the market and saying, ‘Ooh, what looks good out there, let’s try and create something that’s similar to that but somehow better or different.’”</p>	<p><u>Market categories are fixed and stable</u></p> <p><i>James (Stroller Co, CMO)</i>: “It is a critical challenge that demands you understand what the consumer is thinking. So you go to the market and do a lot of research including focus groups to get a sense of what people really understand about what’s wrong with existing products. We might use this research to gain an understanding of how our brand is tracking in light of the competition in terms of issues like quality and reputation, and we look at what they think about our competitors on these credentials.”</p>
Relationship to Time	<p><u>Focus on long-term trends and outcomes; Work back from the hypothesized future</u></p> <p><i>Joanne (Nature Clothing, Head of Design)</i>: [I: You said you design to social trends. What does that mean?] “It’s more sort of broad-ranging, wider topic than fashion, and it runs deeper. I’ll tell you a fairly huge social trend that’s happening is the eco-awareness movement. ... A few years ago it was travel: people were really into exploring, travelling the world and so on. And so now I sort of feel as though it’s kind of waning a little; these people are tempered by the carbon footprint issue with travelling. And so our collection at the moment is still for travellers but it might be slightly different. They [the clothes] tend to be designed for slower moving, longer lasting, it’s just sort of reflecting the mood of the world really, rather than what’s hot this week.”</p>	<p><u>Emphasis on the knowable present; Current data are extrapolated into the near future</u></p> <p><i>Jason (Style Corp, CMO)</i>: “It is not always the best way, but marketing does often think in short time frames and that it is why there can be the gap between the way it and design thinks. Marketing want sales now and in a sense just want design to do as instructed to make the product that the marketer suggests will most likely get those sales, and when it comes to sales and market share that can mean sticking to what we think the consumer is saying now or what they have said in the past.”</p>
Nature of Truth (Input)	<p><u>Various inputs and sources are necessary to uncover consumer latent needs.</u></p> <p><i>Jerome (Sleek Suits, Head of Design)</i>: [I: What would you rather do in a sort of ideal world situation?] “I think you can still use research, but just not the traditional research that we’re using now. ... You probably need to do things that would help you uncover things that you don’t already know. Or that they don’t really know. So you go and look for other territories and you might go and look at other categories, visuals, styles that, you know, might be associated with other</p>	<p><u>Buyers know what they want and can express that knowledge; focus on espoused needs</u></p> <p><i>John (Kitchen Friend, CMO)</i>: “Some designers never know why they’re here. It’s a lot of art for art’s sake. Some designers take a long time to understand that it’s about communication: we’re trying to say something to the consumer and it’s not what you think the communication is; it’s how they receive it. So what we think is cool is not necessary what mainstream Australia thinks is cool, because you’re</p>

categories or might inspire you. And then the designers - this is what they do for a living - they have an array of visual styles in their heads that they might sort of like to try and make appropriate for the category.”

living probably on the periphery of mainstream Australia. Otherwise we’re just going to sit around and my client’s going to say, “Well, I don’t really like pink” and the designer’s going to say, “Well I’m the designer, I like pink”. Commercial design shouldn’t be about that.”

Table 4: Resourceful sensemaking, horizon expansion and NPD outcomes

Firm	Marketing’s initial concept	Design’s initial concept	Resourceful sensemaking example	Result of horizon expansion	
1. Comfy Chairs	Lower cost, simplicity	High design	M: commission workplace trends study focusing on ways of competing (R)	Furniture should fit mind and body	Lea com
2. Swift Ships	Even faster ships	More efficient, lighter vessels	M: conduct focus group to identify user practices (C)	Focus on full benefits of aerodynamic products	Rein and
3. Sleek Suits	Comfort	Technology leadership	M: enter designers in inter-company triathlon competition to highlight value-in-use (R)	Product concept defined as “techno-organic”	New in c
4. Green Clean	Clean requires sacrifice in performance	Performance and aesthetic leadership	D: Put together in house expert panel between marketing, retailers and chemistry academics (C)	Sustainable and better	New firm NZ
5. Nature Clothing	Sustainability focus	Fast fashion	M: Segmentation study used to create persona of emerging sustainable consumer (C)	Slow fashion	New prov other
6. Home Help	Performance leadership	Emphasize designs aesthetics	CEO: exposure session starts with ultimatum that NPD must provide new basis to compete (E)	Functional performance reframed around consumer lifestyles	New esta busi
7. Lounge Co	Cost focus	Sustainability	None occurred	Low cost range wins out	Low sent mar
8. Medi-tech	Reduce cost	Customize	D: involved marketing team in surgical ethnography (R)	Customized craft for surgeons	Sale posi
9. Dream Sleep	Reinforce “modern” position	Reinvent “traditional furniture category”	D: add concept options to focus groups challenging category definition (R)	“Timeless craft”	New and
10. Shower Co	European styling	Unique lifestyle range	D: develop user experience study with marketing team (C)	“Spirituality” and “escape” define product system concept	New sale bran
11. Kitchen Friend	Stay true to identity	Iconic design	M: Send design team out to do a retail floor study (R)	Beautiful simplicity becomes concept	Proo lang mus part

12. Stroller Co	Improve on competition	Reinvent category	D: Provide marketing team who are young parents with early prototypes (R)	Dual focus on new to world product category and supportive add-ons	New stan
13. Fine Cloth	Improve quality	High-end “natural” fibre	M: Put together product development and user experience story board to highlight systemic design flaws (C)	Ingredient brand program that drives product, process and program innovation	Estab ingr colla incr
14. Haute Cuisine	Focus on high quality cuts alone	Challenge quality norms to increase value of all cuts	D: undertake market tour with users while visiting new middle-value restaurants too (C)	Full range of high end products targeted at different buyer needs	Ran com with
15. Spark Co	Functional performance	Aesthetic value	D: mock-ups presented to target users in focus groups (C)	Design enhances functionality and user experience	Firm indu
16. Street Bags	Durability	Fashion	M: immerse design team in users world by shadowing them (R)	Good design stresses comfort and usability	Proo and
17. Craft Gear	Functionality	Fun and creative	D: flip persona of consumer into creative class segment (C)	Creative fun for all ages	Ran reta
18. Smoothie	Commerciality of flavours	Natural purity	M: flip segment into persona to balance competing views (C)	Authentically made	Brar mar
19. Style Corp	Fast fashion	Classic fashion	D: conduct brand history study to emphasise key brand truths (C)	Timeless craft	Brar and
20. Smart Women	Tradition	Modernise and go upmarket	CEO frames problem in ways that require both views (E)	“Traditionally inspired for today”	Brar

M = marketing; D = design; E = exposing; C = co-opting; R = re-purposing

¹ Defined as “the styles in which people organize their thinking and action about innovation” (Dougherty, 1992, p.179).

² As Rouleau (2005, p.1415) states: “although [sensemaking and sensegiving] appear to be conceptually different, the boundaries of each are permeated by the other. As discourse and action, sensemaking and sensegiving are less distinct domains than two sides of the same coin—one implies the other and cannot exist without it”.

³ Schein identified six “assumptions” underpinning espoused beliefs. We mapped our findings onto all six, but three emerged as most relevant to illustrate designers’ and marketers’ different interpretive schemes. These also overlap with Dougherty’s (1992) themes that differentiate thought worlds.